

§ 1.1307

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that are located in the right-of-way within the vicinity of the proposed construction;

(B) Involve the installation of more than four new equipment cabinets or more than one new equipment shelter;

(C) Add an appurtenance to the body of the structure that would protrude from the edge of the structure more than twenty feet, or more than the width of the structure at the level of the appurtenance, whichever is greater (except that the deployment may exceed this size limit if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable); or

(D) Involve excavation outside the current site, defined as the area that is within the boundaries of the leased or owned property surrounding the deployment or that is in proximity to the structure and within the boundaries of the utility easement on which the facility is to be deployed, whichever is more restrictive.

(2) Such wireless facilities are subject to § 1.1307(b) and require EAs if their construction would result in human exposure to radiofrequency radiation in excess of the applicable health and safety guidelines cited in § 1.1307(b).

NOTE 1: The provisions of § 1.1307(a) requiring the preparation of EAs do not encompass the mounting of antenna(s) and associated equipment (such as wiring, cabling, cabinets, or backup-power), on or in an existing building, or on an antenna tower or other man-made structure, unless § 1.1307(a)(4) is applicable. Such antennas are subject to § 1.1307(b) of this part and require EAs if their construction would result in human exposure to radiofrequency radiation in excess of the applicable health and safety guidelines cited in § 1.1307(b) of this part. The provisions of § 1.1307 (a) and (b) of this part do not encompass the installation of aerial wire or cable over existing aerial corridors of prior or permitted use or the underground installation of wire or cable along existing underground corridors of prior or permitted use, established by the applicant or others. The use of existing buildings, towers or corridors is an environmentally desirable alternative to the construction of new facilities and is encouraged. The provisions of § 1.1307(a) and (b) of this part do not encompass the construction of new submarine cable systems.

NOTE 2: The specific height of an antenna tower or supporting structure, as well as the specific diameter of a satellite earth station,

in and of itself, will not be deemed sufficient to warrant environmental processing, *see* § 1.1307 and § 1.1308, except as required by the Bureau pursuant to the Note to § 1.1307(d).

NOTE 3: The construction of an antenna tower or supporting structure in an established “antenna farm”: (*i.e.*, an area in which similar antenna towers are clustered, whether or not such area has been officially designated as an antenna farm), will be categorically excluded unless *one or more of the antennas to be mounted on the tower or structure are subject to the provisions of § 1.1307(b) and the additional radiofrequency radiation from the antenna(s) on the new tower or structure would cause human exposure in excess of the applicable health and safety guidelines cited in § 1.1307(b).*

[51 FR 15000, Apr. 22, 1986, as amended at 51 FR 18889, May 23, 1986; 53 FR 28393, July 28, 1988; 56 FR 13414, Apr. 2, 1991; 64 FR 19061, Apr. 19, 1999; 77 FR 3952, Jan. 26, 2012; 80 FR 1268, Jan. 8, 2015]

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

(a) Commission actions with respect to the following types of facilities may significantly affect the environment and thus require the preparation of EAs by the applicant (*see* §§ 1.1308 and 1.1311) and may require further Commission environmental processing (*see* §§ 1.1314, 1.1315 and 1.1317):

(1) Facilities that are to be located in an officially designated wilderness area.

(2) Facilities that are to be located in an officially designated wildlife preserve.

(3) Facilities that: (i) May affect listed threatened or endangered species or designated critical habitats; or (ii) are likely to jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats, as determined by the Secretary of the Interior pursuant to the Endangered Species Act of 1973.

NOTE: The list of endangered and threatened species is contained in 50 CFR 17.11, 17.22, 222.23(a) and 227.4. The list of designated critical habitats is contained in 50 CFR 17.95, 17.96 and part 226. To ascertain the status of proposed species and habitats, inquiries may be directed to the Regional Director of the Fish and Wildlife Service, Department of the Interior.

(4) Facilities that may affect districts, sites, buildings, structures or objects, significant in American history, architecture, archeology, engineering or culture, that are listed, or are eligible for listing, in the National Register of Historic Places (*see* 54 U.S.C. 300308; 36 CFR parts 60 and 800), and that are subject to review pursuant to section 1.1320 and have been determined through that review process to have adverse effects on identified historic properties.

(5) Facilities that may affect Indian religious sites.

(6) Facilities to be located in floodplains, if the facilities will not be placed at least one foot above the base flood elevation of the floodplain.

(7) Facilities whose construction will involve significant change in surface features (e.g., wetland fill, deforestation or water diversion). (In the case of wetlands on Federal property, *see* Executive Order 11990.)

(8) Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

(b) In addition to the actions listed in paragraph (a) of this section, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the preparation of an Environmental Assessment (EA) if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency radiation in excess of the limits in §§1.1310 and 2.1093 of this chapter. Applications to the Commission for construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities must contain a statement confirming compliance with the limits unless the facility, operation, or transmitter is categorically excluded, as discussed below. Technical information showing the basis for this statement must be submitted to the Commission upon request. Such compliance statements may be omitted from license applications for transceivers subject to the

certification requirement in §25.129 of this chapter.

(1) The appropriate exposure limits in §§1.1310 and 2.1093 of this chapter are generally applicable to all facilities, operations and transmitters regulated by the Commission. However, a determination of compliance with the exposure limits in §1.1310 or §2.1093 of this chapter (routine environmental evaluation), and preparation of an EA if the limits are exceeded, is necessary only for facilities, operations and transmitters that fall into the categories listed in table 1, or those specified in paragraph (b)(2) of this section. All other facilities, operations and transmitters are categorically excluded from making such studies or preparing an EA, except as indicated in paragraphs (c) and (d) of this section. For purposes of table 1, *building-mounted antennas* means antennas mounted in or on a building structure that is occupied as a workplace or residence. The term *power* in column 2 of table 1 refers to total operating power of the transmitting operation in question in terms of effective radiated power (ERP), equivalent isotropically radiated power (EIRP), or peak envelope power (PEP), as defined in §2.1 of this chapter. For the case of the Cellular Radiotelephone Service, subpart H of part 22 of this chapter; the Personal Communications Service, part 24 of this chapter and the Specialized Mobile Radio Service, part 90 of this chapter, the phrase *total power of all channels* in column 2 of table 1 means the sum of the ERP or EIRP of all co-located simultaneously operating transmitters owned and operated by a single licensee. When applying the criteria of table 1, radiation in all directions should be considered. For the case of transmitting facilities using sectorized transmitting antennas, applicants and licensees should apply the criteria to all transmitting channels in a given sector, noting that for a highly directional antenna there is relatively little contribution to ERP or EIRP summation for other directions.

TABLE 1—TRANSMITTERS, FACILITIES AND OPERATIONS SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

Service (title 47 CFR rule part)	Evaluation required if:
Experimental Radio Services (part 5)	Power >100 W ERP (164 W EIRP).
Commercial Mobile Radio Services (part 20)	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >1000 W ERP (1640 W EIRP). Building-mounted antennas: power >1000 W ERP (1640 W EIRP). Consumer Signal Booster equipment grantees under the Commercial Mobile Radio Services provisions in part 20 are required to attach a label to Fixed Consumer Booster antennas that: (1) Provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transmitting antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in § 1.1310.
Paging and Radiotelephone Service (subpart E of part 22).	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >1000 W ERP (1640 W EIRP). Building-mounted antennas: power >1000 W ERP (1640 W EIRP).
Cellular Radiotelephone Service (subpart H of part 22)	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and total power of all channels >1000 W ERP (1640 W EIRP). Building-mounted antennas: total power of all channels >1000 W ERP (1640 W EIRP).
Personal Communications Services (part 24)	(1) Narrowband PCS (subpart D): Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and total power of all channels >1000 W ERP (1640 W EIRP). Building-mounted antennas: total power of all channels >1000 W ERP (1640 W EIRP). (2) Broadband PCS (subpart E): Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and total power of all channels >2000 W ERP (3280 W EIRP). Building-mounted antennas: total power of all channels >2000 W ERP (3280 W EIRP).
Satellite Communications Services (part 25)	All included. In addition, for NGSO subscriber equipment, licensees are required to attach a label to subscriber transceiver antennas that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transceiver antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in § 1.1310 of this chapter.
Miscellaneous Wireless Communications Services (part 27 except subpart M).	(1) For the 1390–1392 MHz, 1392–1395 MHz, 1432–1435 MHz, 1670–1675 MHz, and 2385–2390 MHz bands: Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and total power of all channels >2000 W ERP (3280 W EIRP). Building-mounted antennas: total power of all channels >2000 W ERP (3280 W EIRP). (2) For the 698–746 MHz, 746–764 MHz, 776–794 MHz, 2305–2320 MHz, and 2345–2360 MHz bands: Total power of all channels >1000 W ERP (1640 W EIRP).
Broadband Radio Service and Educational Broadband Service (subpart M of part 27).	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >1640 W EIRP. Building-mounted antennas: power >1640 W EIRP. BRS and EBS licensees are required to attach a label to subscriber transceiver or transverter antennas that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transceiver antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in § 1.1310.
Upper Microwave Flexible Use Service (part 30)	Non-building-mounted antennas: Height above ground level to lowest point of antenna <10 m and power >1640 W EIRP. Antennas are mounted on buildings.
Radio Broadcast Services (part 73)	All included.
Auxiliary and Special Broadcast and Other Program Distributional Services (part 74).	Subparts G and L: Power >100 W ERP.
Stations in the Maritime Services (part 80)	Ship earth stations only.
Private Land Mobile Radio Services Paging Operations (subpart P of part 90).	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >1000 W ERP (1640 W EIRP). Building-mounted antennas: power >1000 W ERP (1640 W EIRP).

TABLE 1—TRANSMITTERS, FACILITIES AND OPERATIONS SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION—Continued

Service (title 47 CFR rule part)	Evaluation required if:
Private Land Mobile Radio Services Specialized Mobile Radio (subpart S of part 90).	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and total power of all channels >1000 W ERP (1640 W EIRP). Building-mounted antennas: Total power of all channels >1000 W ERP (1640 W EIRP).
76–81 GHz Radar Service (part 95)	All included.
Amateur Radio Service (part 97)	Transmitter output power >levels specified in §97.13(c)(1) of this chapter.
Local Multipoint Distribution Service (subpart L of part 101) and 24 GHz (subpart G of part 101).	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >1640 W EIRP. Building-mounted antennas: power >1640 W EIRP. LMDS and 24 GHz Service licensees are required to attach a label to subscriber transceiver antennas that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transceiver antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in § 1.1310.
70/80/90 GHz Bands (subpart Q of part 101)	Non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >1640 W EIRP. Building-mounted antennas: power >1640 W EIRP. Licensees are required to attach a label to transceiver antennas that: (1) provides adequate notice regarding potential radiofrequency safety hazards, e.g., information regarding the safe minimum separation distance required between users and transceiver antennas; and (2) references the applicable FCC-adopted limits for radiofrequency exposure specified in § 1.1310.

(2)(i) Mobile and portable transmitting devices that operate in the Commercial Mobile Radio Services pursuant to part 20 of this chapter; the Cellular Radiotelephone Service pursuant to part 22 of this chapter; the Personal Communications Services (PCS) pursuant to part 24 of this chapter; the Satellite Communications Services pursuant to part 25 of this chapter; the Miscellaneous Wireless Communications Services pursuant to part 27 of this chapter; the Upper Microwave Flexible User Service pursuant to part 30 of this chapter; the Maritime Services (ship earth stations only) pursuant to part 80 of this chapter; the Specialized Mobile Radio Service, the 4.9 GHz Band Service, and the 3650 MHz Wireless Broadband Service pursuant to part 90 of this chapter; the Wireless Medical Telemetry Service (WMTS), the Medical Device Radiocommunication Service (MedRadio), and the 76–81 GHz Band Radar Service pursuant to part 95 of this chapter; and the Citizens Broadband Radio Service pursuant to part 96 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment au-

thorization or use, as specified in §§2.1091 and 2.1093 of this chapter.

(ii) Unlicensed PCS, unlicensed NII, and millimeter-wave devices are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in §§15.255(f), 15.257(g), 15.319(i), and 15.407(f) of this chapter.

(iii) Portable transmitting equipment for use in the Wireless Medical Telemetry Service (WMTS) is subject to routine environmental evaluation as specified in §§2.1093 and 95.2385 of this chapter.

(iv) Equipment authorized for use in the Medical Device Radiocommunication Service (MedRadio) as a medical implant device or body-worn transmitter (as defined in subpart I of part 95 of this chapter) is subject to routine environmental evaluation for RF exposure prior to equipment authorization, as specified in §§2.1093 and 95.2585 of this chapter by finite difference time domain (FDTD) computational modeling or laboratory measurement techniques. Where a showing is based on computational modeling, the Commission retains the discretion to request that

supporting documentation and/or specific absorption rate (SAR) measurement data be submitted.

(v) All other mobile, portable, and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure under §§ 2.1091, 2.1093 of this chapter except as specified in paragraphs (c) and (d) of this section.

(3) In general, when the guidelines specified in § 1.1310 are exceeded in an accessible area due to the emissions from multiple fixed transmitters, actions necessary to bring the area into compliance are the shared responsibility of all licensees whose transmitters produce, at the area in question, power density levels that exceed 5% of the power density exposure limit applicable to their particular transmitter or field strength levels that, when squared, exceed 5% of the square of the electric or magnetic field strength limit applicable to their particular transmitter. Owners of transmitter sites are expected to allow applicants and licensees to take reasonable steps to comply with the requirements contained in § 1.1307(b) and, where feasible, should encourage co-location of transmitters and common solutions for controlling access to areas where the RF exposure limits contained in § 1.1310 might be exceeded.

(i) Applicants for proposed (not otherwise excluded) transmitters, facilities or modifications that would cause non-compliance with the limits specified in § 1.1310 at an accessible area previously in compliance must submit an EA if emissions from the applicant's transmitter or facility would result, at the area in question, in a power density that exceeds 5% of the power density exposure limit applicable to that transmitter or facility or in a field strength that, when squared, exceeds 5% of the square of the electric or magnetic field strength limit applicable to that transmitter or facility.

(ii) Renewal applicants whose (not otherwise excluded) transmitters or facilities contribute to the field strength or power density at an accessible area not in compliance with the limits specified in § 1.1310 must submit an EA if emissions from the applicant's transmitter or facility results, at the area in

question, in a power density that exceeds 5% of the power density exposure limit applicable to that transmitter or facility or in a field strength that, when squared, exceeds 5% of the square of the electric or magnetic field strength limit applicable to that transmitter or facility.

(c) If an interested person alleges that a particular action, otherwise categorically excluded, will have a significant environmental effect, the person shall submit to the Bureau responsible for processing that action a written petition setting forth in detail the reasons justifying or circumstances necessitating environmental consideration in the decision-making process. (See § 1.1313). The Bureau shall review the petition and consider the environmental concerns that have been raised. If the Bureau determines that the action may have a significant environmental impact, the Bureau will require the applicant to prepare an EA (see §§ 1.1308 and 1.1311), which will serve as the basis for the determination to proceed with or terminate environmental processing.

(d) If the Bureau responsible for processing a particular action, otherwise categorically excluded, determines that the proposal may have a significant environmental impact, the Bureau, on its own motion, shall require the applicant to submit an EA. The Bureau will review and consider the EA as in paragraph (c) of this section.

NOTE TO PARAGRAPH (d): Pending a final determination as to what, if any, permanent measures should be adopted specifically for the protection of migratory birds, the Bureau shall require an Environmental Assessment for an otherwise categorically excluded action involving a new or existing antenna structure, for which an antenna structure registration application (FCC Form 854) is required under part 17 of this chapter, if the proposed antenna structure will be over 450 feet in height above ground level (AGL) and involves either:

1. Construction of a new antenna structure;
2. Modification or replacement of an existing antenna structure involving a substantial increase in size as defined in paragraph I(C)(1)(3) of Appendix B to part 1 of this chapter; or
3. Addition of lighting or adoption of a less preferred lighting style as defined in § 17.4(c)(1)(iii) of this chapter. The Bureau shall consider whether to require an EA for

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other antenna structures subject to § 17.4(c) of this chapter in accordance with § 17.4(c)(8) of this chapter. An Environmental Assessment required pursuant to this note will be subject to the same procedures that apply to any Environmental Assessment required for a proposed tower or modification of an existing tower for which an antenna structure registration application (FCC Form 854) is required, as set forth in § 17.4(c) of this chapter.

(e) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the regulations contained in this chapter concerning the environmental effects of such emissions. For purposes of this paragraph:

(1) The term *personal wireless service* means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;

(2) The term *personal wireless service facilities* means facilities for the provision of personal wireless services;

(3) The term *unlicensed wireless services* means the offering of telecommunications services using duly authorized devices which do not require individual licenses, but does not mean the provision of direct-to-home satellite services; and

(4) The term *direct-to-home satellite services* means the distribution or broadcasting of programming or services by satellite directly to the subscriber's premises without the use of ground receiving or distribution equipment, except at the subscriber's premises or in the uplink process to the satellite.

[51 FR 15000, Apr. 22, 1986]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 1.1307, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.govinfo.gov.

EFFECTIVE DATE NOTE: At 85 FR 18142, Apr. 1, 2020, § 1.1307 was amended by revising paragraph (b), effective June 1, 2020. At 85 FR 33578, June 2, 2020, this revision was delayed indefinitely. For the convenience of the user, the revised text is set forth as follows:

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EA) must be prepared.

* * * * *

(b)(1) *Requirements.* (i) With respect to the limits on human exposure to RF provided in § 1.1310 of this chapter, applicants to the Commission for the grant or modification of construction permits, licenses or renewals thereof, temporary authorities, equipment authorizations, or any other authorizations for radiofrequency sources must either:

(A) Determine that they qualify for an exemption pursuant to § 1.1307(b)(3);

(B) Prepare an evaluation of the human exposure to RF radiation pursuant to § 1.1310 and include in the application a statement confirming compliance with the limits in § 1.1310; or

(C) Prepare an Environmental Assessment if those RF sources would cause human exposure to levels of RF radiation in excess of the limits in § 1.1310.

(ii) Compliance with these limits for fixed RF source(s) may be accomplished by use of mitigation actions, as provided in § 1.1307(b)(4). Upon request by the Commission, the party seeking or holding such authorization must submit technical information showing the basis for such compliance, either by exemption or evaluation. Notwithstanding the preceding requirements, in the event that RF sources cause human exposure to levels of RF radiation in excess of the limits in § 1.1310 of this chapter, such RF exposure exemptions and evaluations are not deemed sufficient to show that there is no significant effect on the quality of the human environment or that the RF sources are categorically excluded from environmental processing.

(2) *Definitions.* For the purposes of this section, the following definitions shall apply.

Available maximum time-averaged power for an RF source is the maximum available RF power (into a matched load) as averaged over a *time-averaging period*;

Category One is any spatial region that is compliant with the general population exposure limit with *continuous exposure* or *source-based time-averaged exposure*;

Category Two is any spatial region where the general population exposure limit is exceeded but that is compliant with the occupational exposure limit with *continuous exposure*;

Category Three is any spatial region where the occupational exposure limit is exceeded but by no more than ten times the limit;

Category Four is any spatial region where the exposure is more than ten times the occupational exposure limit or where there is a possibility for serious injury on contact.

Continuous exposure refers to the maximum time-averaged exposure at a given location for an *RF source* and assumes that exposure may take place indefinitely. The exposure limits in §1.1310 of this chapter are used to establish the spatial regions where mitigation measures are necessary assuming continuous exposure as prescribed in §1.1307(b)(4) of this chapter.

Effective Radiated Power (ERP) is the product of the *maximum antenna gain* which is the largest far-field power gain relative to a dipole in any direction for each transverse polarization component, and the *maximum delivered time-averaged power* which is the largest net power delivered or supplied to an antenna as averaged over a *time-averaging period*; *ERP* is summed over two polarizations when present;

Exemption for (an) *RF source(s)* is solely from the obligation to perform a routine environmental evaluation to demonstrate compliance with the RF exposure limits in §1.1310 of this chapter; it is not exemption from the equipment authorization procedures described in part 2 of this chapter, not exemption from general obligations of compliance with the RF exposure limits in §1.1310 of this chapter, and not exemption from determination of whether there is no significant effect on the quality of the human environment under §1.1306 of this chapter.

Fixed RF source is one that is physically secured at one location, even temporarily, and is not able to be easily moved to another location while radiating;

Mobile device is as defined in §2.1091(b) of this chapter;

Plane-wave equivalent power density is the square of the root-mean-square (rms) electric field strength divided by the impedance of free space (377 ohms).

Portable device is as defined in §2.1093(b) of this chapter;

Positive access control is mitigation by proactive preclusion of unauthorized access to the region surrounding an RF source where the continuous exposure limit for the general population is exceeded. Examples of such controls include locked doors, ladder cages, or effective fences, as well as enforced prohibition of public access to external surfaces of buildings. However, it does not include natural barriers or other access restrictions that did not require any action on the part of the licensee or property management.

Radiating structure is an unshielded RF current-carrying conductor that generates an RF reactive near electric or magnetic field and/or radiates an RF electromagnetic wave. It is the component of an *RF source* that transmits, generates, or reradiates an RF fields, such as an antenna, aperture, coil, or plate.

RF source is Commission-regulated equipment that transmits or generates RF fields or waves, whether intentionally or unintentionally, via one or more *radiating structure(s)*. Multiple *RF sources* may exist in a single device.

Separation distance (variable *R* in Table 1) is the minimum distance in any direction from any part of a *radiating structure* and any part of the body of a nearby person;

Source-based time averaging is an average of instantaneous exposure over a *time-averaging period* that is based on an inherent property or duty-cycle of a device to ensure compliance with the *continuous exposure* limits;

Time-averaging period is a time period not to exceed 30 minutes for fixed RF sources or a time period inherent from device transmission characteristics not to exceed 30 minutes for mobile and portable RF sources;

Transient individual is an untrained person in a location where occupational/controlled limits apply, and he or she must be made aware of the potential for exposure and be supervised by trained personnel pursuant to §1.1307(b)(4) of this chapter where use of time averaging is required to ensure compliance with the general population exposure limits in §1.1310 of this chapter.

(3) *Determination of exemption.* (i) For single RF sources (*i.e.*, any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

TABLE 1 TO § 1.1307(b)(3)(i)(C)—SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source frequency (MHz)	Threshold ERP (watts)
0.3–1.34	1,920 R ² .
1.34–30	3,450 R ² /f ² .
30–300	3.83 R ² .
300–1,500	0.0128 R ² f.
1,500–100,000	19.2R ² .

(ii) For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i .

ERP_j = the ERP of fixed, mobile, or portable RF source j .

$ERP_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source j , at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

$Evaluated_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

$Exposure Limit_k$ = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k , as applicable from §1.1310 of this chapter.

(4) *Mitigation.* (i) As provided in paragraphs (b)(4)(ii) through (vi) of this section, specific mitigation actions are required for fixed RF sources to the extent necessary to ensure compliance with our exposure limits, including the implementation of an RF safety plan, restriction of access to those RF sources, and disclosure of spatial regions where exposure limits are exceeded.

(ii) Category One—INFORMATION: No mitigation actions are required when the RF source does not cause continuous or source-based time-averaged exposure in excess of the general population limit in §1.1310 of this part. Optionally a green “INFORMA-

TION” sign may offer information to those persons who might be approaching RF sources. This optional sign, when used, must include at least the following information: Appropriate signal word “INFORMATION” and associated color (green), an explanation of the safety precautions to be observed when closer to the antenna than the information sign, a reminder to obey all postings and boundaries (if higher categories are nearby), up-to-date licensee (or operator) contact information (if higher categories are nearby), and a place to get additional information (such as a website, if no higher categories are nearby).

(iii) Category Two—NOTICE: Mitigation actions are required in the form of signs and positive access control surrounding the boundary where the continuous exposure limit is exceeded for the general population, with the appropriate signal word “NOTICE” and associated color (blue) on the signs. Signs must contain the components discussed in paragraph (b)(4)(vi) of this section. Under certain controlled conditions, such as on a rooftop with limited access, a sign attached directly to the surface of an antenna will be considered sufficient if the sign specifies a minimum approach distance and is readable at this separation distance and at locations required for compliance with the general population exposure limit in §1.1310 of this part. Appropriate training is required for any occupational personnel with access to controlled areas within restrictive barriers where the general population exposure limit is exceeded, and transient individuals must be supervised by trained occupational personnel upon entering any of these areas. Use of time averaging is required for transient individuals to ensure compliance with the general population exposure limit.

(iv) Category Three—CAUTION: Signs (with the appropriate signal word “CAUTION” and associated color (yellow) on the signs), controls, or indicators (e.g., chains, railings, contrasting paint, diagrams) are required (in addition to the positive access control established for Category Two) surrounding the area in which the exposure limit for occupational personnel in a controlled environment is exceeded by no more than a factor of ten. Signs must contain the components discussed in paragraph (b)(4)(vi) of this section. If the boundaries between Category Two and Three are such that placement of both Category Two and Three signs would be in the same location, then the Category Two sign is optional. Under certain

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controlled conditions, such as on a rooftop with limited access, a sign may be attached directly to the surface of an antenna within a controlled environment if it specifies the minimum approach distance and is readable at this distance and at locations required for compliance with the occupational exposure limit in § 1.1310 of this part. If signs are not used at the occupational exposure limit boundary, controls or indicators (*e.g.*, chains, railings, contrasting paint, diagrams, *etc.*) must designate the boundary where the occupational exposure limit is exceeded. Additionally, appropriate training is required for any occupational personnel with access to the controlled area where the general population exposure limit is exceeded, and transient individuals must be supervised by trained personnel upon entering any of these areas. Use of time averaging is required for transient individuals to ensure compliance with the general population exposure limit. Further mitigation by reducing exposure time in accord with six-minute time averaging is required for occupational personnel in the area in which the occupational exposure limit is exceeded. However, proper use of RF personal protective equipment may be considered sufficient in lieu of time averaging for occupational personnel in the areas in which the occupational exposure limit is exceeded. If such procedures or power reduction, and therefore Category reduction, are not feasible, then lockout/tagout procedures in 29 CFR 1910.147 must be followed.

(v) Category Four—WARNING/DANGER: Where the occupational limit could be exceeded by a factor of more than ten, “WARNING” signs with the associated color (orange), controls, or indicators (*e.g.*, chains, railings, contrasting paint, diagrams) are required (in addition to the positive access control established for Category Two) surrounding the area in which the occupational exposure limit in a controlled environment is exceeded by more than a factor of ten. Signs must contain the components discussed in paragraph (b)(4)(vi) of this section. “DANGER” signs with the associated color (red) are required where immediate and serious injury will occur on contact, in addition to positive access control, regardless of mitigation actions taken in Categories Two or Three. If the boundaries between Category Three and Four are such that placement of both Category Three and Four signs would be in the same location, then the Category Three sign is optional. No access is permitted without Category reduction. If power reduction, and therefore Category reduction, is not feasible, then lockout/tagout procedures in 29 CFR 1910.147 must be followed.

(vi) RF exposure advisory signs must be viewable and readable from the boundary where the applicable exposure limits are exceeded, pursuant to 29 CFR 1910.145, and include at least the following five components:

(A) Appropriate signal word, associated color (*i.e.*, {DANGER” (red), “WARNING” (orange), “CAUTION,” (yellow) “NOTICE” (blue)});

(B) RF energy advisory symbol;

(C) An explanation of the RF source;

(D) Behavior necessary to comply with the exposure limits; and

(E) Up-to-date contact information.

(5) *Responsibility for compliance.* (i) In general, when the exposure limits specified in § 1.1310 of this part are exceeded in an accessible area due to the emissions from multiple fixed RF sources, actions necessary to bring the area into compliance or preparation of an Environmental Assessment (EA) as specified in § 1.1311 of this part are the shared responsibility of all licensees whose RF sources produce, at the area in question, levels that exceed 5% of the applicable exposure limit proportional to power. However, a licensee demonstrating that its facility was not the most recently modified or newly-constructed facility at the site establishes a rebuttable presumption that such licensee should not be liable in an enforcement proceeding relating to the period of non-compliance. Field strengths must be squared to be proportional to SAR or power density. Specifically, these compliance requirements apply if the square of the electric or magnetic field strength exposure level applicable to a particular RF source exceeds 5% of the square of the electric or magnetic field strength limit at the area in question where the levels due to multiple fixed RF sources exceed the exposure limit. Site owners and managers are expected to allow applicants and licensees to take reasonable steps to comply with the requirements contained in paragraph (b)(1) of this section and, where feasible, should encourage co-location of RF sources and common solutions for controlling access to areas where the RF exposure limits contained in § 1.1310 of this part might be exceeded. Applicants and licensees are required to share technical information necessary to ensure joint compliance with the exposure limits, including informing other licensees at a site in question of evaluations indicating possible non-compliance with the exposure limits.

(ii) Applicants for proposed RF sources that would cause non-compliance with the limits specified in § 1.1310 at an accessible area previously in compliance must submit an EA if emissions from the applicant's RF source would produce, at the area in question, levels that exceed 5% of the applicable exposure limit. Field strengths must be squared if necessary to be proportional to SAR or power density.

(iii) Renewal applicants whose RF sources would cause non-compliance with the limits specified in § 1.1310 at an accessible area previously in compliance must submit an EA if emissions from the applicant's RF source

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would produce, at the area in question, levels that exceed 5% of the applicable exposure limit. Field strengths must be squared if necessary to be proportional to SAR or power density.

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§ 1.1308 Consideration of environmental assessments (EAs); findings of no significant impact.

(a) Applicants shall prepare EAs for actions that may have a significant environmental impact (*see* § 1.1307). An EA is described in detail in § 1.1311 of this part of the Commission rules.

(b) The EA is a document which shall explain the environmental consequences of the proposal and set forth sufficient analysis for the Bureau or the Commission to reach a determination that the proposal will or will not have a significant environmental effect. To assist in making that determination, the Bureau or the Commission may request further information from the applicant, interested persons, and agencies and authorities which have jurisdiction by law or which have relevant expertise.

NOTE: With respect to actions specified under § 1.1307 (a)(3) and (a)(4), the Commission shall solicit and consider the comments of the Department of Interior, and the State Historic Preservation Officer and the Advisory Council on Historic Preservation, respectively, in accordance with their established procedures. *See* Interagency Cooperation—Endangered Species Act of 1973, as amended, 50 CFR part 402; Protection of Historic and Cultural Properties, 36 CFR part 800. In addition, when an action interferes with or adversely affects an American Indian tribe's religious site, the Commission shall solicit the views of that American Indian tribe. *See* § 1.1307(a)(5).

(c) If the Bureau or the Commission determines, based on an independent review of the EA and any applicable mandatory consultation requirements imposed upon Federal agencies (*see* note above), that the proposal will have a significant environmental impact upon the quality of the human environment, it will so inform the applicant. The applicant will then have an opportunity to amend its application so as to reduce, minimize, or eliminate environmental problems. *See* § 1.1309. If the environmental problem is not

eliminated, the Bureau will publish in the FEDERAL REGISTER a Notice of Intent (*see* § 1.1314) that EISs will be prepared (*see* §§ 1.1315 and 1.1317), or

(d) If the Bureau or Commission determines, based on an independent review of the EA, and any mandatory consultation requirements imposed upon Federal agencies (*see* the note to paragraph (b) of this section), that the proposal would not have a significant impact, it will make a finding of no significant impact. Thereafter, the application will be processed without further documentation of environmental effect. Pursuant to CEQ regulations, *see* 40 CFR 1501.4 and 1501.6, the applicant must provide the community notice of the Commission's finding of no significant impact.

[51 FR 15000, Apr. 22, 1986; 51 FR 18889, May 23, 1986, as amended at 53 FR 28394, July 28, 1988]

§ 1.1309 Application amendments.

Applicants are permitted to amend their applications to reduce, minimize or eliminate potential environmental problems. As a routine matter, an applicant will be permitted to amend its application within thirty (30) days after the Commission or the Bureau informs the applicant that the proposal will have a significant impact upon the quality of the human environment (*see* § 1.1308(c)). The period of thirty (30) days may be extended upon a showing of good cause.

§ 1.1310 Radiofrequency radiation exposure limits.

(a) Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) of this part within the frequency range of 100 kHz to 6 GHz (inclusive).

(b) The SAR limits for occupational/controlled exposure are 0.4 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 8 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit for occupational/controlled